



## *Confirmation of Product Type Approval*

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 01/DEC/2021. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 15/NOV/2021 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

**Product Name:** Non-Metallic Flexible Hose Assemblies

**Model Name(s):** 415 LI, 448 LI, 615 AA, 622 AA, 648 AA, 715 AA and 748 AA

**Presented to:**

ALFAGOMMA INDUSTRIAL S.P.A.  
NUCLEO INDUSTRIALE S. ATTO  
Italy

**Intended Service:**

"415 LI" and "448 LI" hoses: potable water transfer from Supply Vessel to Offshore Platform. "615 AA", "622 AA" and "648 AA" hoses: fuel, oil and liquid mud transfer up to 50% aromatics content from Supply Vessel to Offshore Platform. "715 AA" and "748 AA" hoses: bulk material, barite and dry cement transfer from Supply Vessel to Offshore Platform. For additional details, see Attachment (technical data sheets).

**Description:**

"415 LI" and "448 LI" hoses: white NR tube with high tensile textile cords reinforcement and orange NBR/PVC outer cover. Electrically discontinuous. "615 AA", "622 AA" and "648 AA" hoses: black conductive NBR tube with tensile textile cords reinforcement and black conductive CR outer cover. Electrically continuous. "715 AA" and "748 AA" hoses: black conductive SBR tube with high tensile textile cords reinforcement and black conductive CR outer cover. Electrically continuous. Hard wall, vacuum resistant hoses (415 LI, 615 AA, 622 AA and 715 AA) are additionally reinforced with embedded steel helix wires. All flexible hoses are provided with permanently fitted threaded or flanged end fittings. End fittings are available in S355J2H EN 10297-1, 11SMnPb30 EN 10277-1, API 5I/ASTM A106 Grade B or C20 EN 10083-2 steels or AISI 316 or AISI 316L EN 10216-5 stainless steels. For additional details, see Attachment and reference technical drawings.

**Ratings:**

Maximum Working Pressure: 20 bar (415 LI, 448 LI, 615 AA, 648 AA, 715 AA and 748 AA) 35 bar (622 AA ID 127) 40 bar (622 AA ID 76 and 102). Minimum Vacuum Pressure (hard wall only): 0.1 bar. Temperature rating: from -30 °C to + 80 °C (415 LI, 448 LI, 715 AA and 748 AA) from -30 °C to + 90 °C (615 AA, 622 AA and 648

**Service Restrictions:**

AA) For additional details, see Attachment (technical data sheets).

- In accordance with Par. 5-2-2/5.7.1 of ABS Rules for Offshore Support Vessels Ed. 2016, flexible hoses intended to be used as cargo transfer hoses on ABS Classed vessels having additional Class Notation "Offshore Support Vessel", the maximum expected service pressure of the cargo transfer system has not to exceed 1/5 of hoses burst pressure. - Flexible hoses are not suitable for the transfer of limited amounts of hazardous and noxious liquid substances as listed in 5-2-3/Table 1 of ABS Rules for Offshore Support Vessels, Ed. 2016. - Flexible hoses are not to be used for installations in piping systems where pressure pulse and/or high levels of vibrations are expected to occur in service as per Par. 4-6-2/5.7.3 of ABS Rules for Steel Vessels, Ed. 2016. - Flexible hoses intended to be used for transfer of flammable media (615 AA, 622 AA and 648 AA) are not to be installed in on-board piping systems. - Flexible hoses are to be complete with factory assembled end fittings or factory supplied end fittings installed in accordance with Manufacturer's specifications as per Par. 4-6-2/5.7.3(b) of ABS Rules for Steel Vessel, Ed. 2016. - Hose assemblies are to be installed only where flexibility is required, in clearly visible and readily accessible locations, and are not to be subject to torsional deflection under normal conditions. - Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

**Comments:**

1) Routine tests as per Annex H of EN 1765:2004 Standard and Production Acceptance Tests as per Alfagomma Table 4/Q/TA/40/00 dated 4/10/2016 to be carried out, as applicable. 2) Flexible hoses are to be permanently marked by the Manufacturer, as per 4-6-2/5.7.6 of ABS Steel Vessel Rules Ed. 2016, with the following details: - Hose Manufacturer's name or trademark; - Date of manufacture (month/year); - Designation type reference; - Nominal diameter; - Pressure rating; - Temperature rating. 3) Electrically discontinuous hose assemblies (415 LI and 448 LI) shall have, in addition, the words "ELECTRICALLY DISCONTINUOUS" in legible characters permanently displayed onto the body of the hose. 4) Black hoses (615 AA, 622 AA, 648 AA, 715 AA and 748 AA) have been found in compliance with flammability test as per Annex A of EN 1762 Standard. 5) Orange hoses (415 LI and 448 LI) have been found in compliance with the requirements of the FDA – CFR 21 – Parts 170 to 199 – Item 177.2600 Paragraph (a), (b), (c), (d) of the use in contact with dry foods, (e) of the contact with aqueous foods, (f) of the contact with fatty foods. 6) Hard wall hoses 415 LI, 615 AA and 715 AA are also available in self-floating version with a reserve of buoyancy calculated in accordance with Par. 1.7.4 of OCIMF Guide to Manufacturing and Purchasing Hoses for Offshore Moorings. 7) Only Alfagomma approved ferrules and inserts are to be used for end fittings, as per Manufacturer's recommendations. 8) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

**Notes / Documentation:**

For Flexible Hoses Technical Data Sheets, see Attachment. For End Fittings Technical Drawings, see Attachment. Hose Test Report No. 415LI102-102016 dated 14-Oct-2016; Hose Test Report No. 448LI102-102016 dated 13-Oct-2016; Hose Test Report No. 615AA203-102016 dated 14-Oct-2016; Hose Test Report No. 622AA102-102016 dated 14-Oct-2016; Hose Test Report No. 622AA127-102016 dated 14-Oct-2016; Hose Test Report No. 648AA102-102016 dated 17-Oct-2016; Hose Test Report No. 648AA152-102016 dated 20-Oct-2016; Hose Test Report No. 715AA127-102016 dated 14-Oct-2016; Hose Test Report No. 748AA127-102016 dated 14-Oct-2016; Adhesion Test Report No. ADH415LI-448OI dated 29-Aug-2016; Adhesion Test Report No. ADH615AA-622AA-648AA dated 29-Aug-2016; Adhesion Test Report No. ADH715AA-748AA dated 27-Aug-2016; Alfagomma Declaration about Test Reports on Tube and Cover Compounds dated 27-Sep-2016; Tensile Test Report No. 2016/10/0115 dated 12-Oct-2016; Tensile Test Report No. 2016/11/0037 dated 4-Nov-2016; LAPI Flammability Test Report No. 1381/OMP0110/15 dated 18-Sep-2015; CERISIE Declaration No. 642-Abis/2011 dated 1-Jan-2012; Alfagomma Table No. 4/Q/TA/40/00 – Control Specification Off Shore AG 1765 dated 4-Oct-2016.

**Term of Validity:**

This Product Design Assessment (PDA) Certificate 16-GE1571946-PDA, dated 16/Nov/2016 remains valid until 15/Nov/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in

existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

**ABS Rules:**

- Rules for Condition of Classification (2016): 1-1-4/7.7, 1-1-A3 and A4, which covers the following: - Rules for Building and Classing Steel Vessels (2016): 4-6-2/5.7; - Rules for Building and Classing Offshore Support Vessels (2016): 4-6-2/5.7, 5-2-2/5.7; - Rules for Building and Classing Steel Vessels Under 90 Meters (295 Feet) in Length (2016): 4-4-1/9.19; - Rules for Conditions of Classifications – Offshore Units and Structures (2016): 1.1.4/9.7, 1-1-A2 and A3, which covers the following: - Rules for Building and Classing Mobile Offshore Drilling Units (2016): 4-2-1/11.29

- National Standards:**
- International Standards:**
- Government Authority:**
- EUMED:**
- Others:**

Alfagomma Technical Specifications (as applicable): - 415 LI, Rev. 4 dated 16/09/2016; - 448 LI, Rev. 3 dated 16/09/2016; - 615 AA, Rev. 4 dated 16/09/2016; - 622 AA, Rev. 3 dated 16/09/2016; - 648 AA, Rev. 3 dated 16/09/2016; - 715 AA, Rev. 3 dated 16/09/2016; - 748 AA, Rev. 3 dated 19/09/2016. The above Specifications also recall main design and testing criteria of BS EN 1765:2004 Standard.

<b>Model Certificate</b>	<b>Model Certificate No</b>	<b>Issue Date</b>	<b>Expiry Date</b>
PDA	16-GE1571946-PDA	16/NOV/2016	15/NOV/2021



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.